CITY of COLUMBUS

1300)

950 Maple Ave. P.O. Box 228 Columbus, WI 53925-0228 (920) 623-5912 FAX (920) 623-5923

Water & Light Department

January 30, 2001

Jim Loock, Chief Electric Engineer Public Service Commission 610 N. Whitney Way P.O. Box 7854 Madison, WI 53707-7854

RE:

In the Matter of Filing Plans for Appropriate Inspection and

Maintenance, PSC Rule 113.0607.

Dear Mr. Loock:

Enclosed for filing are 3 copies of Columbus Water & Light's Preventative Maintenance Plan detailing inspection maintenance schedules, condition rating criteria, corrective action schedules, record keeping procedures and report filing schedules as documented in this rule.

John O. Anoller

Very truly yours.

John O. Andler

Superintendent

Enclosures

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JAN 3 1 2001

Electric Division

PREVENTATIVE MAINTENANCE PLAN

COLUMBUS WATER & LIGHT

FILING DEADLINE FEBRUARY 1, 2001

January 30, 2001

John O. Andler 950 Maple Avenue Columbus, WI 53925 920-623-5912 jandler@wppisys.org

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Electric Division

This plan was prepared by the MEUW work group for PSC Rule 113.0607 for use by the 82 municipal electric utilities in Wisconsin and endorsed by PSC staff as meeting the requirements of Rule PSC 113.0607.

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I. Preventative Maintenance Plan

The PSC 113.0607 rule reads:

Appropriate inspection and maintenance: system reliability.

- (1) PREVENTATIVE MAINTENANCE PLAN. Each utility or other person subject to this chapter, including persons who own electric generating facilities in this state who provide service to utilities with contracts of five years or more, shall develop and have in place its own preventative maintenance plan. This section is applicable to electric generating facilities as set forth at s. 194.491(5)(a)(1), Stats. Each plan shall include, among other things, appropriate inspection, maintenance and replacement cycles where applicable for overhead and underground distribution plant, transmission, generation¹, and substation facilities.
- (2) CONTENTS OF THE PLAN. (a) *Performance standard*. The Preventative Maintenance Plan shall be designed to ensure high quality, safe, and reliable service, considering: cost, geography, weather, applicable codes, national electric industry practices, sound engineering judgment and experience.
- 1 PSC staff interpretation is that generation applies to individual generators equal to or greater than 50 MW.

II. Inspection Schedule and Methods:

The purpose of this plan is to maintain or improve the electrical system reliability with the objective of increased municipal loyalty and satisfaction from our constituents. The goals are to meet and exceed the schedules established in this plan.

Exception reporting (inspected equipment not in good condition) will be the method of documentation on all inspection forms.

The scope of this plan is traditional and uses proven maintenance techniques. Unique operating and maintenance philosophies have not been considered. Also, manufacturer defects will be dealt with as they are communicated to this utility.

EVERY

SCHEDULE:	MONTHLY	ANNUAL	5 YEARS
Transmission (69Kv and above)		X	X
Substations	X	X	
Distribution (OH & UG)			X

The inspection of Distribution facilities will be by individual substation circuits on a 5-year cycle such that the entire system will be inspected every 5 years. Inspector instructions for inspecting all facilities and forms are included with the plan.

METHODS: Five criteria groups will be used to complete the inspection of all facilities.

- 1. <u>IR</u> infrared thermography used to find poor electrical connections and/or oil flow problems in equipment.
- 2. <u>RFI</u> Radio Frequency Interference, a byproduct of loose hardware and connections, is checked using an AM radio receiver.
- 3. <u>SI</u> structural integrity of all supporting hardware including poles, crossarms, insulators, structures, bases, foundations, buildings, etc.
- 4. <u>Clearance</u> refers to proper spacing of conductors from objects, trees and other utility cables.
- 5. <u>EC</u> equipment condition on non-structural components such as circuit breakers, transformers, regulators, reclosers, relays, batteries, capacitors, etc.

III. Condition Rating Criteria:

This criterion, as listed below, establishes the condition of a facility and also determines the repair schedule to correct deficiencies.

- 0) Good condition
- 1) Good condition but aging
- 2) Non-critical maintenance required normally repair within 12 months
- 3) Priority maintenance required normally repair within 90 days
- 4) Urgent maintenance required report immediately to the utility and repair normally within 1 week

IV. Corrective Action Schedule

The rating criteria as listed above determine the corrective action schedule.

V. Record Keeping

All inspection forms and records will be retained for a minimum of 10 years. The inspection form contains all of the required critical information i.e. inspection dates, condition rating, schedule for repair and date of repair completion.

VI. Reporting Requirements

A report and summary of this plan's progress will be submitted every two years with the first report due to the Commission by February 1, 2003. The report will consist of a letter documenting the percent of inspections achieved compared to the schedule and a description of maintenance achieved within the scheduled time allowance.

VII DISTRIBUTION - OVERHEAD INSPECTION GUIDE

STRUCTURE

- Pole Condition
- Pole Leaning
- Crossarm Condition
- Insulators, Deadend, Pin
- Excess Fill or Soil Removal
- Pole Steps
- Grounds Intact
- Ground Molding
- Down Guys
- Guy Markers
- Guy Bonding/Insulator
- Signage Location Number, Warning Sign
- Customer Equipment
- Conductor
- Tie Wires
- U Guard/Conduit Condition

EQUIPMENT

- Transformers
 - ✓ Oil Leaks
 - ✓ Bushing Condition
 - ✓ Grounding/Bonding
- Capacitors
 - ✓ Fuses Blown
 - ✓ Bushing Condition
 - ✓ Oil Leaks
 - ✓ Tank Bulged
 - ✓ Switches, Oil, Vacuum
 - ✓ Control Conduit/Wiring
 - ✓ Grounding/Bonding
- Switches GOAB, Inline, Disconnect
 - ✓ Insulator Condition
 - ✓ Operating Handle/Locks
 - ✓ Linkage
 - ✓ Grounding/Bonding
 - ✓ Switch Number
- Cutouts
 - ✓ Insulator Condition
 - ✓ Fuse Size Tag

VII DISTRIBUTION - OVERHEAD INSPECTION GUIDE (con't)

EQUIPMENT (CON'T)

- Arrestor
 - ✓ Insulator Condition
 - ✓ Connections
 - ✓ Ground Lead Connection
- Cable Terminators
 - ✓ Insulator Condition
 - ✓ Grounding/Bonding

CLEARANCES

- Ground Line
- Buildings, Bridges, Swimming Pool, Etc.
- Communications Facilities
- Fuel Tanks
- Other Electric Utilities
- Transmission Lines
- Over Streets, Roads, Alleys, Highways
- Tree Trimming
 - ✓ Clearance From Line
 - ✓ Vines on Poles
 - ✓ Danger Trees

INFRARED SCAN

- Main Three-Phase Feeders
- Priority Overhead Transformer Banks
 - ✓ Bushing Connectors Primary
 - ✓ Bushing Connectors Secondary
 - ✓ General Tank Heating
- Current & Voltage Transformers if Applicable

RFI CHECK

• OH system with AM radio as each circuit is inspected

OVERHEAD DISTRIBUTION INSPECTION FORM

Corrected By Date Item Corrected 똕 1) Good Condition but aging
2) Non-critical Maintenance Required
3) Priority Maintenance Required
4) Urgent Maintenace Required COMMENTS 0) Good Condition Rating Criteria Inspected by. Communication Clearance CLEARANCE Steets, Roads, Alleys **Building Clearances** Ground Line Clearances Pree Trimming Steet Light EQUIPMENT **Terminators** Arresters **Stuotu**O Switches Transformer RFI Check U'Guard/Conduit Cond Conductor and Ties Customer Equipment Signs, Loc#, Warning STRUCTURE Guy Bond, Insulator Down Guys and Markers Grounds Intact, Molding Pole Steps Soil Conditions Insulators, DE, Pin Crossarm Condition Pole Condition/Leaning MAP AREA LOCATION

VIII DISTRIBUTION - UNDERGROUND INSPECTION GUIDE

STRUCTURAL (Exterior & Interior) Transformer, Primary Pedestal, Secondary Pedestal, Switchgear.

- Enclosure Condition
- Level/Leaning
- Security
- Grade/Accessibility (Shrubs, Customer Facilities, Fill/Excavation)
- Numbering
- Voids/Gaps
- Signage Location Number, Warning Sign
- Pad/Vault Condition

EQUIPMENT

- Transformers
 - ✓ Oil Leaks
 - ✓ Bushing Condition
 - ✓ Grounding/Bonding
 - ✓ Elbows
 - ✓ Arrestors
 - ✓ Feed-Through
 - ✓ Cable Condition
 - ✓ Secondary Connections
- Primary Pedestals
 - ✓ Elbows
 - ✓ Junction Condition
 - ✓ Grounding/Bonding
- Secondary Pedestals
 - ✓ Secondary Connections
- Switches URD Switchgear
 - ✓ Insulator Condition
 - ✓ Operating Handle Security
 - ✓ Linkage
 - ✓ Grounding/Bonding
 - ✓ Switch Number/Fuse Size & Number

INFRARED SCAN and RFI CHECK

- Main Three-Phase Feeders (Risers & Switchgear)
- Priority URD Transformer Banks
 - ✓ Bushing Connectors Primary
 - ✓ Bushing Connectors Secondary
 - ✓ General Tank Heating

COLUMBUS WATER & LIGHT

UNDERGROUND DISTRIBUTION INSPECTION FORM Date_

Circuit

Sub

Inspected by

	Corrected By											
	Date I tem Corrected											
COMMENTS	Rating Criteria 0) Good Condition 1) Good Condition but aging 2) Non-critical Maintenance Required 3) Priority Maintenance Required 4) Urgent Maintenace Required											
IR / RFI Scan	Priority URD Transformers, Bushings and Tank heating									-		
IR/R	Main Three Phase Feeders, Risers & Switchgear											
	Switches , Signage, Insulators, Security, Linkage, Ground, Bonds											
ENT	Secondary Pedestals, Connections											_
EQUIPMENT	Primary Pedestals, Elbows, Grounding, Bonds, Junction cond.											
	Transformers, Leaks, Bushings, Grounding,Bonds,Elbows, Arrestors, Cable cond, Connections											
	Pad / Vault Condition											
	Signage											
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JCTU	Pumbering	\downarrow		1		\bot						
STRUCTURE	Grade / Accessibility	_						\downarrow				
	Security		\perp									
	pains9 / Lexel		_		\perp							
	Enclosure Condition	\perp	\downarrow			\downarrow						
MAP AREA	EQUIPMENT											

IX SUBSTATION - MONTHLY INSPECTION GUIDE

TRANSFORMER MAIN TANK:

- Oil in bushings
- Bushing and arrestor porcelain
 - ✓ Cracks or chips
 - ✓ Rust or dirt
- Oil leaks
 - ✓ Main tank
 - ✓ Sample valves
 - ✓ Radiators
- Radiator bank
 - ✓ warm on top, cool at bottom
- Tank pressure
- Tank oil level
- Temperature gauge
- Cooling fans

VOLTAGE REGULATORS:

- Tank oil level
- Drag hand positions
- Cabinet light
- Operation count
- Tank pressure
- Cabinet heater
- Cabinet contamination

FEEDER CIRCUIT BREAKERS / RECLOSERS

- OPEN/CLOSED indicator
- CHARGED/DISCHARGED indicator
- Cabinet light
- Cabinet heater
- Operations counter
- Bushings and supports
 - ✓ Cracks or chips
 - ✓ Rust or dirt
- Line and load side disconnect switches
 - ✓ Labeled properly✓ Aligned properly

 - ✓ Handles grounded
- Emergency trip button
- Oil level gauge
- Tank oil leaks
- Reset switch
- Cabinet contamination
- Vents clean

IX SUBSTATION - MONTHLY INSPECTION GUIDE (con't)

HIGH AND LOW VOLTAGE BUSS WORK:

- Bushing, insulator, arrestor, and support insulators
 - ✓ Chips or cracks
 ✓ Rust or dirt
- Bird nests
- Potential transformers bushings
 - ✓ Cracks or chips
 - ✓ Rust or dirt
- Cable terminators
 - ✓ Leaking fluid
 - ✓ Cracks or chips

MANUAL SWITCHES:

- Properly labeled
- Ground connections
- Positioning and alignment
- Bushing and support insulators
 - ✓ Cracks or chips
 - ✓ Rust or dirt

CONTROL HOUSE/MISCELLANEOUS:

- Clock displays proper time
- AC/DC load center breakers
- Room temperature
- Rodents
- Panels labeled properly
- Panel lights
- Annunciator panel
- Panel meters
- SCADA system RTU
- SCADA alarms
- Position indicators agree
- Relay target information
- Emergency contact directory & dial tone for phone
- Safety Equipment

YARD AND FENCE:

- Fire extinguisher charged
- Fence ground connections
- Fence secured
- Security and emergency lights
- Site base and grade
- Standing water
- Warning signs

MONTHLY S	UBSTATION INSPECTION	N FORM
INSPECTED BY:		
DATE:		
SUBSTATION: #1 NORTH WATE	R STREET	
TRANSFORMER MAIN TANK	RATING: 0 1 2 3 4	(Circle One)
inspected X	COMMENTS	DATE CORRECTED CORRECTED BY
Oil in Bushings		5
Bushing and Arrestor		
Oil Leaks		
Main Tank		
Sample Valves		
Radiators		
Radiator Bank		
Tank Pressure		
Tank Oil Level		
Temperature Gauge		
Cooling Fans		
VOLTAGE REGULATORS	RATING: 0 1 2 3 4	(Circle One)
Tank Oil Level		
Drag Hand Positions		
Cabinet Light		
Operation Count		
Tank Pressure		
Cabinet Heater		
Cabinet Contamination		
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MONTHLY	SUBSTAT	'ION II	NSF	PEC	CTIC	N FORM	
INSPECTED BY:							
DATE:						 	
SUBSTATION: #2 NORTH WA	TER STREET						
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TRANSFORMER MAIN TANK	RATING:	0 1	2	3	4	(Circle One)	
inspected X		COMMEN	NTS			DATE CORRECTED	CORRECTED BY
Oil in Bushings							
Bushing and Arrestor							
Oil Leaks							
Main Tank							
Sample Valves							
Radiators					,		
Radiator Bank					**		
Tank Pressure					·		
Tank Oil Level							
Temperature Gauge							
Cooling Fans							
VOLTAGE REGULATORS	RATING:	0 1	2	3	4	(Circle One)	
Tank Oil Level							
Drag Hand Positions							
Cabinet Light							
Operation Count							
Tank Pressure							
Cabinet Heater							
Cabinet Contamination							

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SUBSTATION: #3 MAPLE	AVE	NUE								
TRANSFORMER MAIN TANK			RATING:	0	1	2	3	4	(Circle One)	
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Oil in Bushings										
Bushing and Arrestor										
Oil Leaks										
Main Tank										
Sample Valves										
Radiators							-			
Radiator Bank										
Tank Pressure										
Tank Oil Level								-		
Temperature Gauge									1	
Cooling Fans										
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VOLTAGE REGULATORS	-		RATING:	0	1	2	3	4	(Circle One)	
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Drag Hand Positions				***						
Cabinet Light	· · · · · ·		· · · · · · · · · · · · · · · · · · ·				·			
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SUBSTATION: #1 NORTH WAT	ER	STREET	
RECLOSER: RECLOSER 101			
FEEDER CIRCUIT BREAKER /			
RECLOSER		RATING: 0 1 2 3 4	(Circle One)
inspected	x	COMMENTS	DATE CORRECTED CORRECTED BY
OPEN/CLOSED Indicator			OOKKEGTED BY
CHARGED/DISCHARGED Indicator			
Cabinet Light			
Cabinet Heater			
Operations Counter			
Push to Trip Button (by foot)			
Pul to Closel Laynard			
Pistol Grip (to open/trip or close)			
Cabinet Contamination			
Vents Clean			
Amperage Reading A			
Amperage Reading B			
Amperage Reading C			
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SUBSTATION: #1 NORTH WAT	ER	STRFFT							
RECLOSER: RECLOSER 102									
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CHARGED/DISCHARGED Indicator									
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Cabinet Contamination									
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OPEN/CLOSED Indicator									
CHARGED/DISCHARGED Indicator					-				
Cabinet Light									
Cabinet Heater									
Operations Counter									
Push to Trip Button (by foot)									
Pul to Closel Laynard									
Pistol Grip (to open/trip or close)									
Cabinet Contamination									
Vents Clean									
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OPEN/CLOSED Indicator									
CHARGED/DISCHARGED Indicator									
Cabinet Light									
Cabinet Heater									
Operations Counter									
Push to Trip Button (by foot)									
Pul to Closel Laynard			·						
Pistol Grip (to open/trip or close)						-			
Cabinet Contamination									
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CHARGED/DISCHARGED Indicator									
Cabinet Light									
Cabinet Heater									
Operations Counter									
Push to Trip Button (by foot)									
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Pistol Grip (to open/trip or close)									
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FEEDER CIRCUIT BREAKER /				*					···
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OPEN/CLOSED Indicator								JOHNEGIEB	<u> </u>
CHARGED/DISCHARGED Indicator									
Cabinet Heater									
Operations Counter									
Bushings and Supports									
Line and Load Side Disconnect Switches									
Emergency Trip Button						,			
Reset Switch (on control)			_						
Manual Closing Crank (top of recloser)									
Oil Level Gauge									
Tank Oil Level									
Cabinet Contamination				-					
Vents Clean				_					
Battery Test		,		_					
Battery Installation Date									
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Amperage Reading A									
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Drag Hand A									
Drag Hand B									
Drag Hand C									

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RECLOSER: RECLOSER 206									
FEEDER CIRCUIT BREAKER / RECLOSER		RATING:	0	1	2	3	4	(Circle One)	
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CHARGED/DISCHARGED Indicator									
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Operations Counter									
Bushings and Supports									
Line and Load Side Disconnect Switches									
Emergency Trip Button									
Reset Switch (on control)									
Manual Closing Crank (top of recloser)									
Oil Level Gauge									
Tank Oil Level									
Cabinet Contamination									
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SUBSTATION: #3 MAPLE AVEN	IUE								
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CHARGED/DISCHARGED Indicator									
Cabinet Heater							_		
Operations Counter									
Bushings and Supports							*		
Line and Load Side Disconnect Switches									
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Manual Switch									
Cabinet Contamination									
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SUBSTATION: #3 MAPLE AVEN	IUE						-		
RECLOSER: RECLOSER 302									
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inspected	X		CO	MME	NTS			DATE CORRECTED	CORRECTED BY
OPEN/CLOSED Indicator									
CHARGED/DISCHARGED Indicator									
Cabinet Heater									
Operations Counter									
Bushings and Supports									
Line and Load Side Disconnect Switches									
Supervisory Switch									
Manual Switch									
Cabinet Contamination									
Vents Clean									
Battery Test									
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RECLOSER 303		<u></u>							
FEEDER CIRCUIT BREAKER /						-			
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CHARGED/DISCHARGED Indicator									
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Operations Counter					_				
Bushings and Supports									
Line and Load Side Disconnect Switches									
Supervisory Switch									
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Battery Test									
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MONTHLY SU	JE	STATIO	N	NS	PE	CT	101	FORM	***************************************
INSPECTED BY:				,					
DATE:									
SUBSTATION: #1 NORTH WATER	STF	REET							
HIGH & LOW VOLTAGE BUSS WORK		RATING:	0	1	2	3	4	(Circle One)	
inspected	x		CON	MEN	TS			DATE CORRECTED	CORRECTED BY
Bushing, Insulator, Arrestor, and Supports									
Bird Nests									· · · · · · · · · · · · · · · · · · ·
Transformer Bushings						•			
Cable Terminators									
MANUAL SWITCHES		RATING:	0	1	2	3	4	(Circle One)	
Properly Labeled									
Ground Connections					***				
Positioning and Alignment									
Bushings and Supports									

		STATION INSF				
INSPECTED BY:				1101	4 1 OICIVI	
DATE:				· · · · · ·		
SUBSTATION: #2 NORTH WATER	STR	= CT				
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HIGH & LOW VOLTAGE BUSS WORK		RATING: 0 1 2	2 3	4	(Circle One)	
inspected	x	COMMENTS	3		DATE CORRECTED	CORRECTED BY
Bushing, Insulator, Arrestor, and Supports					JOHNEOTED	
Bird Nests						
Transformer Bushings						
Cable Terminators						<u> </u>
MANUAL SWITCHES		RATING: 0 1 2	3	4	(Circle One)	
Properly Labeled						
Ground Connections						
Positioning and Alignment						
Bushings and Supports						
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INSPECTED BY: DATE: SUBSTATION: #3 MAPLE AVENUE HIGH & LOW VOLTAGE BUSS WORK RATING: 0 1 2 3 4 (Circle One) Inspected X COMMENTS DATE CORRECTED BY Bushing, Insulator, Arrestor, and Supports Bird Nests Transformer Bushings Cable Terminators MANUAL SWITCHES RATING: 0 1 2 3 4 (Circle One) Properly Labeled Ground Connections Positioning and Alignment	MONTHLY SU	JB	STATIO	N	INS	PE	CT	101	V FORM	
DATE	INSPECTED BY:									
HIGH & LOW VOLTAGE BUSS WORK RATING: 0 1 2 3 4 (Circle One) inspected X COMMENTS DATE CORRECTED BY Bushing, Insulator, Arrestor, and Supports Bird Nests Transformer Bushings Cable Terminators MANUAL SWITCHES RATING: 0 1 2 3 4 (Circle One) Properly Labeled Ground Connections Positioning and Alignment					···					
HIGH & LOW VOLTAGE BUSS WORK RATING: 0 1 2 3 4 (Circle One) COMMENTS DATE CORRECTED BY	SUBSTATION: #3 MAPLE AVENUE	:	 ·							
inspected X COMMENTS DATE CORRECTED BY Bushing, Insulator, Arrestor, and Supports Bird Nests Transformer Bushings Cable Terminators MANUAL SWITCHES RATING: 0 1 2 3 4 (Circle One) Properly Labeled Ground Connections Positioning and Alignment								 -		
inspected X Bushing, Insulator, Arrestor, and Supports Bird Nests Transformer Bushings Cable Terminators MANUAL SWITCHES RATING: 0 1 2 3 4 (Circle One) Properly Labeled Ground Connections Positioning and Alignment	HIGH & LOW VOLTAGE BUSS WORK		RATING:	0	1	2	3	4	(Circle One)	
Bushing, Insulator, Arrestor, and Supports Bird Nests Transformer Bushings Cable Terminators MANUAL SWITCHES RATING: 0 1 2 3 4 (Circle One) Properly Labeled Ground Connections Positioning and Alignment		x		CON	/MEN	ITS			- 1	
Bird Nests Transformer Bushings Cable Terminators MANUAL SWITCHES RATING: 0 1 2 3 4 (Circle One) Properly Labeled Ground Connections Positioning and Alignment	Bushing, Insulator, Arrestor, and Supports									
Cable Terminators MANUAL SWITCHES RATING: 0 1 2 3 4 (Circle One) Properly Labeled Ground Connections Positioning and Alignment										
MANUAL SWITCHES RATING: 0 1 2 3 4 (Circle One) Properly Labeled Ground Connections Positioning and Alignment	Transformer Bushings									
Properly Labeled Ground Connections Positioning and Alignment										
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Properly Labeled Ground Connections Positioning and Alignment		\top						····		
Properly Labeled Ground Connections Positioning and Alignment		十								
Ground Connections Positioning and Alignment	MANUAL SWITCHES	<u>L</u>	RATING:	0	1	2	3	4	(Circle One)	
Positioning and Alignment	Properly Labeled									
	Ground Connections			_						
	Positioning and Alignment									
	Bushings and Supports	\neg								
										
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MONTHLY	SU	BSTATI	ON	IIN	SP	EC	TIO	N FORM	
INSPECTED BY:									
DATE:					***				
SUBSTATION: #1 NORTH WA	TER S	TREET							

CONTROL HOUSE/MISCELLANEOUS		RATING:	0	1	2	3	4	(Circle One)	
inspected	х		CO	MMEN	ITS			DATE CORRECTED	CORRECTED BY
Room Temperature									
Rodents									
Panels Labeled Properly									
Panel Lights									
Annunciator Panel									
Panel Meters									
SCADA System RTU									
SCADA Alarms			_						
Position Indicators Agree									
Relay Target Information									
Safety Equipment									
YARD & FENCE		RATING:	0	1	2	3	4	(Circle One)	
Fire Extinguisher Charged									
Fence Ground Connections									
Fence Secured									
Security and Emergency Lights									
Site Base and Grade									
Standing Water									
Hot Stick Canister									
Warning Signs									
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MONTHLY SU	UBSTAT	ION	111	ISP	EC	TIO	N FORM	
INSPECTED BY:							- T T OT THE	
DATE:								
SUBSTATION: #2 NORTH WATER	R STREET							
CONTROL HOUSE/MISCELLANEOUS	RATING:	0	1	2	3	4	(Circle One)	
inspected X		COI	MME	NTS			DATE CORRECTED	CORRECTED
Room Temperature								
Rodents								
Panels Labeled Properly								
Annunciator Panel								
Panel Meters								
SCADA System RTU								
SCADA Alarms								
Position Indicators Agree								
Safety Equipment			·					
		·						
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YARD & FENCE	RATING:	0	1	2	3	4	(Circle One)	
ire Extinguisher Charged								
ence Ground Connections								
ence Secured								
Security and Emergency Lights								
Site Base and Grade							 	
Standing Water				·· -				
Hot Stick Canister		**						
Warning Signs								
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INSPECTED BY:								TT I CITITI	
DATE:									
SUBSTATION: #3 MAPLE AVE	ENUE								
CONTROL HOUSE/MISCELLANEOUS	;	RATING:	0	1	2	3	4	(Circle One)	
inspected	x		COI	MME	NTS			DATE	CORRECTED
Room Temperature								CORRECTED	BY
Rodents									
Panels Labeled Properly						 .			
Annunciator Panel								-	
Panel Meters	 								
SCADA System RTU	 								
SCADA Alarms									
Position Indicators Agree									
Safety Equipment									
									
	 								
	 -								
	 								
	-								
YARD & FENCE		RATING:	0	1	2	3	4	(Circle One)	
Fire Extinguisher Charged									
Fence Ground Connections									
Fence Secured								1	
Security and Emergency Lights								+	
Site Base and Grade				·				1	
Standing Water				*				++	
Hot Stick Canister				·				+	
Warning Signs								+	
	\top							+	
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X Substation - Annual Inspection Guide

- Check equipment for level
- Check condition of concrete pads
- Perform oil and DGA analysis
- Nameplate legible
- Equipment paint condition
- Proper equipment ID labels
- IR / RFI scans and checks

COLUMBUS WATER & LIGHT ANNUAL SUBSTATION INSPECTION FORM

MAINTENANCE COMPLETED Corrected By Substation: #1 -- NORTH WATER STREET Date Item Corrected 2) Non-critical Maintenance Required 3) Priority Maintenance Required 4) Urgent Maintenace Required 1) Good Condition but aging COMMENTS 0) Good Condition Rating Criteria IR / RFI scans and checks SUBSTATION INSPECTION CRITERIA Proper identification labels Equipment paint condition Nameplate legible Inspected by_ Perform oil and DGA analysis Check condition of concrete pads Check equipment for level EQUIPMENT LISTING Feeder CBs / Reclosers RFI Transmission line Fransforme Switches

12 MEUW - Preventative Maintenance Plan Format

COLUMBUS WATER & LIGHT ANNUAL SUBSTATION INSPECTION FORM

Date	Inspected by	ted b	>					Substation: #2 NORTH WATER STREET	STREET	
		SUBST/	II NOITY	SUBSTATION INSPECTION CRITERIA	ON CRIT	ERIA		COMMENTS	MAINTE	MAINTENANCE COMPLETED
EQUIPMENT LISTING	Check equipment for level	Check condition of concrete pads	sizylsns AƏO bns lio mohec	Jameplate legible	notibnoo faint condition	slədsi notisəfitnəbi səpər	R / RFI scans and checks	Rating Criteria 0) Good Condition 1) Good Condition but aging 2) Non-critical Maintenance Required 3) Priority Maintenance Required 4) Urgent Maintenace Required	ate Item Corrected	orrected By
Transformer	-	-	-		3	3			a	0
		-								
Feeder CBs / Reclosers		+	-							
		+	-							
			-							
Switchoo										
						-				
			***	2			100 min 100 mi			
Transmission line RFI	Ī									
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U MEUW - Preventative Maintenance Plan Format										

COLUMBUS WATER & LIGHT ANNUAL SUBSTATION INSPECTION FORM

MAINTENANCE COMPLETED Corrected By Date I tem Corrected Substation: #3 -- MAPLE AVENUE Good Condition but aging
 Non-critical Maintenance Required
 Priority Maintenance Required
 Urgent Maintenace Required COMMENTS 0) Good Condition Rating Criteria IR / RFI scans and checks SUBSTATION INSPECTION CRITERIA Proper identification labels Equipment paint condition Nameplate legible Inspected by Perform oil and DGA analysis Check condition of concrete pads Check equipment for level EQUIPMENT LISTING Feeder CBs / Reclosers Transmission line ransformer Switches

MEUW - Preventative Maintenance Plan Format